SECOR

SECOR
INTERNATIONAL
INCORPORATED

www.secor.com
3017 Kilgore Road, Suite 100
Rancho Cordova, CA 95670
916-861-0400 TEL
916-861-0430 FAX

April 20, 2006

Mr. Dale Radford, P.E.
County of Sonoma Department of Health Services,
Environmental Health Division
3273 Airway Drive, Suite D
Santa Rosa, CA 95403

RE: **Quarterly Summary and Monitoring Report – First Quarter 2006**
SECOR Project No.: 77CP.60009.02.2810

Dear Mr. Radford:

On behalf of ConocoPhillips, SECOR International Incorporated (SECOR) is forwarding the quarterly summary report for the following location:

Service Station	**Location**
Circle K Store No. 5426	8510 Gravenstein Highway Cotati, California

If you have questions or comments regarding this quarterly summary report, please do not hesitate to contact me at (916) 861-0400.

Sincerely,
SECOR International Incorporated

Thomas M. Potter
Project Scientist

cc: Mr. Thomas Kosel, ConocoPhillips

Attachment: SECOR's *Quarterly Summary and Monitoring Report – First Quarter 2006*

QUARTERLY SUMMARY REPORT
First Quarter 2006

Circle K Store No. 5426
8510 Gravenstein Highway
Cotati, California

City/County ID #: Cotati

County: Sonoma

SITE DESCRIPTION

The site is an active Circle K Store and Service Station located on the southeast corner of the intersection of Gravenstein Highway and Redwood Drive in Cotati, California. Six wells (MW-2, MW-6 through MW-9, and OW) are currently monitored on a quarterly basis at the site. In addition, joint groundwater monitoring has been performed including monitoring ten additional wells at the adjacent ARCO facility.

PREVIOUS ASSESSMENT

On October 11, 1993, Randall and Sons Construction (R&S) removed five steel underground storage tanks (USTs) from the site. Total petroleum hydrocarbons as gasoline (TPHg) and diesel (TPHd) as well as benzene, toluene, ethylbenzene, and xylenes (BTEX) were detected in confirmation soil samples collected from the side-walls of the UST excavation. R&S subsequently over-excavated approximately 400 cubic yards (cy) of hydrocarbon-impacted soil. Confirmatory soil samples collected from the side-walls of the over-excavation area indicated that residual hydrocarbon impact remained in the northwestern portion of the excavation.

On October 12, 1994, R&S performed additional over-excavation of approximately 200 cy of soil from the northwestern portion of the initial excavation. TPHd was detected at 65 parts per million (ppm) in a confirmation soil sample collected from the newly exposed side-wall in the northwestern portion of the over-excavation. No other petroleum hydrocarbons were detected in soil samples collected during this phase of the excavation.

A total of five groundwater monitoring wells (MW-2 and MW-6 through MW-9) and one UST cavity observation well (OW), were installed subsequent to over-excavation activities. Groundwater monitoring has been on going since January 1996. Historical groundwater analytical results indicate the presence of TPHg, TPHd, BTEX, and methyl tertiary butyl ether (MtBE) in groundwater beneath the site, particularly in the northwestern (downgradient) portion of the site.

In December 1999, SECOR submitted a Remedial Alternative Feasibility Study (FS) to the Sonoma County Department of Health Services (SCDHS). After a review of five remedial alternatives, the FS recommended chemical oxidation as a technically feasible, cost-effective remedial technology for the site.

In October 2000, SECOR submitted the results of a well survey conducted within a 1,900-foot radius of the site as requested by the SCDHS. Thirteen wells (of which a total of eleven are used for domestic and/or irrigation water supply purposes) were located within the 1,900-foot search radius around the site. The site was found to fulfill the State Water Resources Control Board (SWRCB) guidelines for a Priority Class A Site due to the presence of MtBE in excess of 10,000 parts per billion (ppb) in groundwater, and a water supply well within 1,900 feet of the site.

During July 2001, SECOR supervised drilling of eight continuous-core soil borings (GP-1 through GP-6, GP-8, and GP-9). Five borings were advanced to approximately 21 feet below ground surface (bgs), and three borings were advanced to 46 feet bgs. Select soil samples, one grab groundwater sample per shallow boring, and two grab groundwater samples per deeper boring were analyzed for TPHg, BTEX, and fuel oxygenates. Soil samples contained up to 1,300 mg/kg TPHg, 1.6 mg/kg benzene, 5.3 mg/kg ethylbenzene, and 57 mg/kg xylenes. MtBE was not detected in soil samples. Grab groundwater samples contained benzene to 0.087 milligrams per liter (mg/l), xylenes to 0.086 mg/l, and MtBE to 14 mg/l. Other analytes were not detected.

During May 2002, SECOR supervised the installation of one soil boring, which was subsequently converted to monitoring well MW-10. The MW-10 boring was advanced to 30 feet bgs, and subsurface soil samples were collected every five feet. Select soil samples were analyzed for TPHg, BTEX, and fuel oxygenates. The maximum reported concentrations in soil samples were 3.1 mg/kg TPHg, 0.0081 mg/kg ethylbenzene, 0.0091 mg/kg xylenes, and 0.033 mg/kg MtBE (via Method 8020M). A post-development groundwater sample collected from MW-10 contained 230 µg/l ethylbenzene, 180 µg/l xylenes, and 5,000 µg/l MtBE. After MW-10 was installed, a pump test was conducted using MW-10 as the pumping well and MW-2, MW-7, MW-8, MW-9, and OW as observation wells. Estimated aquifer parameters for pumping well MW-10 were as follows:

- Transmissivity: 74.4 ft^2/day
- Conductivity: 3.9 ft/day
- Zone of influence: 161.7 feet

During May 2002, SECOR conducted a dual phase extraction (DPE) pilot test using well MW-10. DPE was performed using a 20-horsepower liquid ring vacuum pump connected to a H2 Oil Recovery Systems, Inc. thermal oxidizer unit. The pilot test time was approximately 33 hours. During the DPE test approximately 24 pounds of TPHg and 0.07 pounds of MtBE were extracted. The estimated radius of influence for MW-10 was 26 feet.

From November 14, 2005 to December 8, 2005 SECOR installed four on-site extraction wells (EW-1, EW-2, EW-3, and EW-4) at locations shown on Figure 2. Drilling activities were performed by Cascade Drilling, Inc. of Rancho Cordova, California. Groundwater samples collected from extraction wells EW-2, EW-3 and EW-4 were analyzed for the presence of GRO, BTEX, MtBE, 1,2-DCA, TAME, TBA, DIPE, EDB, EtBE, and ethanol by EPA Method 8260B. GRO, BTEX, MtBE, TAME, and TBA were detected above laboratory reporting limits in groundwater. Soil samples collected from extraction well EW-1 were analyzed for the presence of GRO, BTEX, MtBE, 1,2-DCA, TAME, TBA, DIPE, EDB, EtBE, and ethanol by EPA Method 8260B. MtBE, ethylbenzene, total xylenes and GRO were detected above laboratory reporting limits in soil. Currently a dual phase extraction system is in design to address the hydrocarbon impacted soil and groundwater.

SENSITIVE RECEPTORS

SECOR conducted a survey of all wells within a 1,900-foot radius of the subject site. Well survey information was obtained from Sonoma County. Based on data provided by Sonoma County, there are a total of 17 wells within the 1,900-foot radius. Thirteen are domestic wells, one is an irrigation well, one is an oil test well and two are of unknown use.

MONITORING AND SAMPLING

The site has been monitored and sampled since the fourth quarter 1991. Quarterly monitoring and sampling has been performed between the first quarter 1997 to the present. Currently, six wells are monitored quarterly (MW-2, MW-6 through MW-9, and OW). Samples are analyzed for TPHg, BTEX, and MtBE. Results are discussed below and are summarized in TRC's *Quarterly Monitoring Report, January through March* dated March 29, 2006, which is included in Attachment 1.

DISCUSSION

During the first quarter 2006, depth to groundwater ranged between 7.40 and 8.73 feet below top of casing, which is in range of historical levels. Historical groundwater depths have been reported between 5.50 feet and 12.96 feet bgs. The direction of groundwater flow is toward the northeast to northwest at a gradient of 0.01 foot per foot.

Evaluation of dissolved concentrations through the first quarter 2006 indicates that the highest concentrations of residual petroleum hydrocarbons and MtBE continue to be detected in on-site wells MW-2, MW-7, and off-site well MW-9. The maximum TPPH and MtBE concentrations reported this quarter were 5,400 µg/l and 180 µg/l, respectively, in the groundwater sample collected from MW-7. The maximum benzene concentration reported this quarter was 180 µg/L, respectively, from the groundwater sample collected from MW-2.

The implementation of the corrective action plan (CAP) submitted March 8, 2005 will address the current plume with a dual phase extraction system by extracting water from

selected wells thereby creating a cone of depression pulling with it dissolved phase hydrocarbons with an anticipated result of shrinking the plumes. Along with the water treatment, the cone of depression will increase the vadox zone for vapor extraction to address the source contamination on site.

CHARACTERIZATION STATUS

Contamination in soil has been adequately assessed. Approximately 600 cubic yards of contaminated soil were excavated during tank removal in 1993 and 1994. Soil analytical data indicates that residual contamination is localized near the water table (smear zone) in the northern part of the site. Contamination in groundwater is not fully delineated, and the Circle K plume is likely commingled with the contamination from the ARCO station located north of Gravenstein Highway. The highest concentrations have consistently been reported in MW-7, located near the northern boundary of the site.

REMEDIAL PERFORMANCE SUMMARY

During 1993 and 1994, approximately 600 cubic yards of contaminated soil was excavated as part of UST removal. As an interim remedial measure, weekly batch extraction has been conducted at the Site since September, 2003. In 2005, the weekly batch extraction was reduced to a monthly basis until the Corrective Action Plan and the Remedial Action Plan was approved. Batch extraction was discontinued in June 2005.

Currently, SECOR is in the process of finalizing designs for a dual phase extraction system and obtaining the necessary permits for operation. SECOR anticipates the system to be installed during the second quarter 2006 and operational by the third quarter 2006.

RECENT SUBMITTALS/CORRESPONDENCE

Submitted

To: County of Sonoma Department of Health Services, Environmental Health Division, *Quarterly Summary and Monitoring Report – Fourth Quarter 2005,* dated February 6, 2006.

WASTE DISPOSAL

The volume of purged groundwater generated and disposed of during the quarterly groundwater monitoring event is documented in TRC's *Quarterly Monitoring Report, January through March 2006* dated March 29, 2006 (Attachment 1).

THIS QUARTER ACTIVITIES (First Quarter 2006)

1. TRC performed groundwater monitoring and sampling event.

2. SECOR prepared and submitted a quarterly monitoring and summary report.

NEXT QUARTER ACTIVITIES (Second Quarter 2006)

1. TRC will perform groundwater monitoring and sampling event.

2. SECOR will prepare and submit quarterly monitoring and summary report.

3. SECOR to design dual phase extraction system and implement the CAP submitted March 8, 2005.

LIMITATIONS

This report presents our understanding of existing conditions at the subject site. The conclusions contained herein are based on the analytical results, and professional judgment in accordance with current standards of professional practice; no other warranty is expressed or implied. SECOR assumes no responsibility for exploratory borings or data reported by other consultants or contractors.

Sincerely,

SECOR International Incorporated

Adrian Perez, P.E.
Associate Engineer

Ben McKenna
Project Geologist

Attachment:

Attachment 1 – TRC's Quarterly *Monitoring Report, January through March 2006,* dated March 29, 2006

ATTACHMENT 1
TRC'S *QUARTERLY MONITORING REPORT JANUARY THROUGH MARCH 2006*

Circle K Store No. 5426
8510 Gravenstein Highway
Cotati, California
April 20, 2006
SECOR Project No.: 77CP.60009.02.2810

SEE TRC

REPORT:

(Uploaded Separately)